

Appl. No. 10/760,139

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel claims 1-11, and add new claim 22 as follows:

Listing of Claims:

Claims 1-11. (Cancelled)

12. (Previously Presented) A device for manipulating particles using dielectrophoresis, the device comprising:

a substrate across which the particles move;
a radial array of insulating features on the substrate; and
a plurality of electrodes positioned to generate a spatially non-uniform electric field across the array of insulating features.

13. (Original) A device according to claim 12, wherein the insulating features comprise posts, and the diameter of the posts increases according to their radial position in said radial array.

14. (Previously Presented) A method for manipulating particles using dielectrophoresis, the method comprising:

passing a sample fluid containing the particles across a non-uniform array of insulating features;

generating a spatially non-uniform electric field, the spatially non-uniform electric field exerting a dielectrophoretic force on the particles thereby constraining motion of at least one particle while avoiding suppression of electroosmotic flow of the sample fluid; and

trapping at least one particle at a location in the non-uniform array, wherein the location is determined at least in part based on electric and geometrical properties of the particle.

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15. (Original) A method according to claim 14, further comprises trapping a first group of particles having a first dielectrophoretic mobility at a first location in the non-uniform array and a second group of particles having a second dielectrophoretic mobility at a second location in the non-uniform array.

16. (Previously Presented) A method according to claim 14, wherein the act of passing the sample fluid across the non-uniform array comprises electrokinetic transport, advection, sedimentation, buoyancy, or magnetophoresis.

17. (Original) A method according to claim 14, further comprising:
changing the spatially non-uniform electric field such that the dielectrophoretic force on the first particle is decreased; and
transporting the first particle to a second location in the non-uniform array; and
trapping the first particle at the second location.

18. (Original) A method according to claim 17, further comprising:
changing the spatially non-uniform electric field such that the dielectrophoretic force on the first particle is decreased; and
transporting the first particle to an outlet port.

19. (Previously Presented) A method according to claim 14, wherein the act of passing the sample fluid across the non-uniform array comprises employing electrokinetic transport.

20. (Previously Presented) A method according to claim 19, wherein the act of passing the sample fluid across the non-uniform array comprises employing electroosmotic flow.

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21. (Previously Presented) A method according to claim 14, wherein the non-uniform array comprises a radial array, the method further comprising trapping particles in a ring around a center of the radial array.

22. (New) A method for manipulating particles using dielectrophoresis, the method comprising:

passing a sample fluid containing the particles across a non-uniform radial array of insulating features;

generating a spatially non-uniform electric field, the spatially non-uniform electric field exerting a dielectrophoretic force on the particles thereby constraining motion of at least one particle; and

trapping the particles in a ring around a center of the radial array, wherein the location of the ring is determined at least in part based on electric and geometrical properties of the particles.